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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/210,775	12/14/1998	TOSHIAKI SHIMADA	1163-0214P	4920

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BIRCH STEWART KOLASCH & BIRCH
P O BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER
WONG, ALLEN C

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 07/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/210,775	SHIMADA ET AL.	
	Examiner	Art Unit	
	Allen Wong	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-14 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 5/15/02 have been fully read and considered but they are not persuasive.

2. Regarding lines 10-14 on page 3 of applicant's remarks, applicant asserts that Lee does not disclose the detection of the motion between the frames as a whole. The examiner respectfully disagrees. Lee teaches the use of measurement methods to determine relative distances between frames, where the HOD (Histogram of Difference) method is noted as one of the best because of its sensitivity to local motion, especially when there is no global motion between frames (col.19, lines 48-61 and col.21, line 53+). Lee's Figure 29 shows the plot of frames in a group of frames (GOP) with the local motion changes of the frames with respect to another . Lee teaches that the HOD method of determining local motion in between frames can be applied to a group of frames (GOP) so that bit control algorithms can be applied accordingly to adapt to the changing scene complexity between the frames in a GOP (col.20, line 39 to col.21, line 52). Also, Lee teaches that the target bit allocation for each picture type is varied accordingly to adapt to the changing scene complexity found within a sequence of moving pictures (ie. group of pictures) to be encoded (col.35, lines 20-22). In other words, Lee teaches a control scheme that takes the complexity found in the sequence of moving pictures, and adaptively allocates the proper amount of bits for encoding the sequence of moving pictures by changing to the proper quantization step size.

3. With regards to pages 4-6 of applicant's remarks, applicant contends that there is no suggestion to combine the references of Odaka and Lee. The examiner respectfully disagrees. As stated before, the references of Odaka and Lee are used in the same MPEG video encoding environment. Odaka and Lee can be cohesively applied together because they are analogous to one another. Lee is used to meet the limitations not taught by Odaka.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art to take the teachings of Odaka and Lee

as a whole for taking into account of the complexity of the sequence of moving pictures so as to accurately, effectively and efficiently encode the sequence of moving pictures while preserving high image quality and for keeping up with today highly complex encoding standards.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Odaka (5,317,397) in view of Lee (5,592,226).

Regarding claim 1, Odaka discloses a moving picture encoding system for encoding each picture included in a sequence of moving pictures in units of a unit group (ie. GOP or Group of Pictures) comprised of a plurality of pictures including said each picture, said system comprising:

encoding control means for, when said unit group includes a plurality of different types of pictures which are to be encoded with different encoding methods (col.15, table 1; note the picture types and the different encoding modes), setting a target quantizer step size used to encode each of the different types of pictures included in said unit group (col.15, ln.46-52; Odaka discloses the quantization step size used to encode the I frame is greater than the quantization step size used to encode the P frame, and similarly, Odaka discloses the quantization step size used to encode the P frame is

greater than the quantization step size used to encode the B frame; thus, a target quantizer step size is set to encode the different type of pictures included in said unit group), and for performing a control operation to generate and furnish a quantizer step size so that a ratio among the target quantizer step sizes set for the different picture types is a predetermined one (note figure 17, element 717 is a coding controller that generates and furnishes the quantization step size; col.15, ln.46-52 discloses the ratio is predetermined; col.23, ln.34-40 discloses the predetermined ratios of the quantization step sizes); and

encoding means for encoding said each picture included in said sequence of moving pictures including said each picture using quantizer step size furnished by said encoding control means (note figure 17, element 104, is the quantizer that uses the quantizer step size furnished by the encoding control means 717, then the data is sent to the VLC, Variable Length Coding unit) and using either said each picture or prediction from a past intra-coded image and/or a predictive coded image (note figure 17, element 708 stores the prediction image data from a past intra-coded image and/or a predictive coded image).

Although Odaka does not specifically disclose the limitation "said control operation not being totally dependent on the allocation of quantity of the target amount of codes based on the global complexity measure for each of the picture, but in accordance with features of the sequence of moving pictures". However, Lee teaches the use of measurement methods to determine relative distances between frames, where the HOD (Histogram of Difference) method is noted as one of the best because

of its sensitivity to local motion, especially when there is no global motion between frames (col.19, lines 48-61 and col.21, line 53+). Lee teaches that the HOD method of determining local motion in between frames can be applied to a group of frames (GOP) so that bit control algorithms can be applied accordingly to adapt to the changing scene complexity between the frames in a GOP (col.20, line 39 to col.21, line 52). Also, Lee teaches that the target bit allocation for each picture type is varied accordingly to adapt to the changing scene complexity found within a sequence of moving pictures (ie. group of pictures) to be encoded (col.35, lines 20-22). In other words, Lee teaches a control scheme that takes the complexity found in the sequence of moving pictures, and adaptively allocates the proper amount of bits for encoding the sequence of moving pictures by changing to the proper quantization step size. Therefore, it would have been obvious to one of ordinary skill in the art to take the teachings of Odaka and Lee as a whole for taking into account of the complexity of the sequence of moving pictures so as to accurately, effectively and efficiently encode the sequence of moving pictures while preserving high image quality and for keeping up with today highly complex encoding standards.

Regarding claims 2-10, 13 and 14, Odaka discloses, in col. 22, lines 58 to col. 23, ln.5, that the activity or complexity, ie. spatial and temporal differences, is detected before setting the proper quantization step size for that frame type to encode. In other words, the complexity obtained from the frame data is extracted and used to help determine the proper quantization step size so that the frames can be properly

encoded. Then, Odaka discloses, in col.25, ln.18 to col.26, ln.28, that the ratios among the quantizer step sizes for the different types of pictures are updated.

With regards to claims 11 and 12, Odaka discloses, in figure 17, the use of a cyclical encoding process, a loop for recursive encoding processing where the buffer 715 is storing the amount of generated codes outputted from the variable length coding unit 712 and then the buffer 715 has an arrow to go to the coding controller (ie. encoding control means or quantization controller) where the quantization step sizes and the amount of generated codes are evaluated for determining the proper quantization step size so as to encode the different types of pictures the proper corresponding encoding methods.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (703) 306-5978. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (703) 305-4856. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Allen Wong
Examiner
Art Unit 2613

AW
July 11, 2002

HOWARD BRITTON
PRIMARY EXAMINER